RUSTANOVICH, D.N.; SHIROKOVA, Ye.I.

Some results of an investigation of the Ashkhabad earthquake of 1948. Izv. AN SSSR. Ser. geofiz. no.12:1782-1788 D '64
(MIRA 18:3)

1. Institut fiziki Zemli AN SSSR.

LYUBALINSKAYA, Z.P.; NEMIROVSKAYA, V.N.; SHIROKOVA, Ye.V.

Methods for the lithogeochemical study of ancient geosynclinal formations. Mat. po geol. i pol.iskop.Kras.kraia no.3:203-207 '62. (MIRA 17:2)

SHIROKOVA, Yu.F.

Spore-pollen complex in Turonian sediments of the Tymsk 1-R
hole. Trudy SNIGGIMS no.8:196-202 '60. (MIRA 15:9)
(Kargasok District--Palynology)

MARKOVA, L.G.; SHIROKOVA, Yu.F.

Spore-pollen complexes in Maestrichtian sediments in the 1-P Tym borehole. Geol. i geofiz. no.12:120-123 '60. (MIRA 14:5)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii geofiziki i mineral'nogo syr'ya, Novosibirsk.
(Napas region—Palynology)

[illegible], V.[illegible].

Latitudinal zonality of the vegetation in the Middle Oligocene of the West Siberian Plain; based on the data of spore pollen analysis. Izv. SO AN SSSR no.12. Ser. biol.-med. nauk no.3: 21-28 '64.
(MIRA 18:6)

1. Zapadno-Sibirskaya ekspeditsiya Sibirskogo nauchno-issledovatel'skogo instituta geologii, geofiziki i mineral'nogo syr'ya, Tomsk.

ZHUKOV, Vasiliy Andreyevich; MESYATSEV, P.P., retsenzent; LICHNOV, A.I., inzh., retsenzent; SHIROKOVA, Z.G.,inzh., retsenzent; GUREVICH, B.D., inzh., retsenzent; BASTANOV, S.S., inzh., retsenzent; GOLOVINA, K.N., inzh., retsenzent; BEL'TSEV, A.N., inzh., retsen-
zent; SOLOMATIN, V.V., inzh., retsenzent; MARSHEV, N.I., inzh., retsenzent; MARSHEV, N.I., inzh., retsenzent; BALASHEVA, T.I., inzh., retsenzent; GIRSHMAN, G.Kh., red.; ANGELEVICH, N.E., red.; SOBOLEVA, Ye.M., tekhn.red.

[Technology of the manufacture of radio equipment] Tekhnologiia proizvodstva radioapparatury. Moskva, Gos.energ.izd-vo, 1959. 636 p.

(Radio industry) (MIRA 13:3)

Shirokova, Z I

SUBJECT: USSR/Welding

AUTHORS: Yershov, L.K., Engineer; Burkhutov, A.N., Engineer, and Shirokova, Z. I., Engineer. 135-6-6/13

TITLE: Automatic Welding of a Household Refrigerator Casing under Carbon Dioxide (Avtomaticheskaya svarka kozhukha kompressora domashnego kholodil'nika v srede uglekislogo gaza).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957, # 6, pp 12-15 (USSR).

ABSTRACT: The technology of welding and a new welding device used at the Moskva Automobile Plant imeni Likhachev in the production of refrigerators, are described. Before 1956, the circular welds on the tubular casing (for the motor and compressor) were made with the use of high-grade electrodes "Э42А" with coating "УП-2" which corresponded to all technical conditions imposed, but the process was expensive and toilsome. The new welding machine has been developed at the plant imeni Likhachev after an extensive experimental work during 1954-55 with direct consultation with candidate of Technical Sciences A.M. Novozhilov of "TsNIITMASh". It welds simultaneously two circular welds with a melting electrode in carbon dioxide medium and consists of

Card 1/2

135-6-6/13

TITLE: Automatic Welding of a Household Refrigerator Casing under Carbon Dioxide (Avtomaticheskaya svarka kozhukha kompressora domashnego kholodil'nika v srede uglekislogo gaza).

the semi-automatic welder "ПАШ-500" of the "Elektrik"-plant which was adapted to this operation.

The construction of the refrigerator casing, the technology of welding, the electric circuit diagram, the operation of the welding machine, and the construction of a special torch used, are described in detail.

The article contains 2 photographs, 2 schemes, 1 diagram, and 1 drawing.

ASSOCIATION: Moskva Automobile Plant imeni Likhachev. (Moskovskiy Abtozavod imeni Likhacheva)

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress.

Card 2/2

SHIROKOVA, Z.I.

25(1); 25(5) PHASE I BOOK EXPLOITATION SOV/3279

RSFSR. Moskovskiy gorodskoy ekonomicheskiy administrativnyy rayon. Sovet narodnogo khozyaystva.

Mekhanizatsiya i avtomatizatsiya svarki; iz opyta Moskovskogo avtomobil'nogo zavoda im. I.A. Likhacheva. (Welding Mechanization and Automation; the Practice of the Moscow Automobile Plant im. I.A. Likhachev) Moscow, Tsentr. byuro tekhn. informatsii, 1958. 21 p. (Series: Dostizheniya nauki i tekhniki) 2,200 copies printed.

Executive Engineer: V.F. Tyurin; Ed.: Ye.A. Gorbuleva; Tech. Ed.: Ye.A. Torshina.

PURPOSE: This book is intended for engineers and technicians concerned with the problems of the mechanization and automation of welding.

COVERAGE: This book contains two articles on the mechanization and automation of welding. The first article discusses automatic welding of a home refrigerator compressor housing, using

Card 1/3

Welding Mechanization (Cont.) SOV/3279

Assembling and Welding the Air Containers of ZIL-make Motor Vehicles.

AVAILABLE: Library of Congress (TS 227 .M33)

AC/jb
4-4-60

Card 3/3

SOV-135-58-11-7/21

AUTHORS: Yershov, L.K., Shirokova, Z.I., Burkhutov, A.N., and Yakovlev, N.I., Engineers

TITLE: The Welding by Electric Riveting in Carbon Dioxide of Moulding Chain Links (Svarka zven'yev formuyushchikh tsepey elektrozaklepkami v srede uglekislogo gaza)

PERIODICAL: Svarochnoye proizvodstvo, 1958, Nr 11. pp 17-19 (USSR)

ABSTRACT: Information is presented on a method of the electric riveting in carbon dioxide of moulding chain links, used in the production of large-size concrete plates. For this purpose TsNIITMASh designed a special device which consists of the "ADS-500" type automat, a special welding torch, a support, a gas feed point and a "PS-600" type transformer. The modernization of the electric circuit of the described device consists in the control of the welding-rod feed by a "RVE-2C" type electronic time-relay. The device and its operation are described in detail and are illustrated by photographs and diagrams.

Card 1/2

SOV-135-58-11-7/21

The Welding by Electric Riveting in Carbon Dioxide of Moulding Chain Links

There are 5 photos, 1 electric circuit diagram, and 2 diagrams.

ASSOCIATION: Moskovskiy avtozavod im. Likhacheva (Moscow Automobile Plant imeni Likhachev)

1. Chains—Arc welding 2. Arc welding—Equipment
3. Carbon dioxide—Applications

Card 2/2

KUDREVATYKH, L.P.; SHIROKOVA, Z.I.

Friction welding of the cardan of a truck steering gear. Avtom. svar. 18 no.3:73-74 Mr '65.

(MIRA 18:6)

DORONIN, Nikolay Andreyevich; GOLOVANOV, Yu.N., doktor tekhn.nauk, red.; SHIROKOVA, Z.S., red.; MAZEL', Ye.I., tekhn.red.

[Metallurgy of calcium] Metallurgiia kal'tsiia. Pod red. IU.N.Golovanova. Moskva, Izd-vo Glav.upr.po ispol'zovaniiu atomnoi energii pri Sovete ministrov SSSR, 1959. 89 p. (MIRA 12:6)
(Calcium)

LEBEDINSKIY, A.V., obshchiy red.; LEVINSKIY, S.V., kand.med.nauk, red.; SEDOV, V.V., kand.med.nauk, red.; SHIROKOVA, Z.S., red.; MAZEL', Ye.I., tekhn.red.

[Proceedings of the Second International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1958] Trudy Vtoroi mezhdunarodnoy konferentsii po mirnomu ispol'zovaniyu atomnoy energii, Zheneva, 1958. (Doklady sovetskikh uchenykh) Moskva, Izd-vo Glav.uprav.po ispol'zovaniui atomnoy energii.pri Sovete Ministrov SSSR. Vol.5. [Radiobiology and radiation medicine] Radiobiologiia i radiatsionnaia meditsina. 1959. 429 p. (MIRA 12:11)

1. International Conference on the Peaceful Uses of Atomic Energy, 2d, Geneva, 1958. 2. Chlen-korrespondent AMN SSSR (for Lebedinskiy).

(RADIOBIOLOGY)

LEBEDINSKIY, A.V., obshchiy red.; LEVINSKIY, S.V., kand.med.nauk, red. toma; SEDOV, V.V., kand.med.nauk, red.toma; SHIROKOVA, Z.S., red.; MAZEL', Ye.I., tekhn.red.

[Radiobiology and radiation medicine; reports of Soviet scientists] Radiobiologiia i radiatsionnaia meditsina; doklady sovetskikh uchenykh. Pod red. A.V.Lebedinskogo. Moskva, Izd-vo Glav.uprav. po izpol'zovaniiu atomnoi energ. pri Sovete Ministrov SSSR, 1959. 429 p. (Trudy, vol.5) (MIRA 12:9)

1. International Conference on the Peaceful Uses of Atomic Energy. 2d, Geneva, 1958. 2. Chlen-korrespondent AMN SSSR (for Lebedinskiy). (RADIOBIOLOGY)

LEBEDINSKIY, A.V., red.; SEDOV, V.V., kand. med. nauk, red.; SEROVA, V.P., red.; SHIROKOVA, Z.S., red.; MAZEL', Ye.I., tekhn. red.

[Transactions. Selected reports by foreign scientists] Trudy. [Izbrannye doklady inostrannykh uchenykh] Moskva, Izd-vo Glav. uprav. po ispol'zovaniiu atomnoi energ. pri sovete Ministrov SSSR. Vol. 9. [Radiobiology and radiation medicine] Radiobiologiia i radiatsionnaia meditsina. Pod obshchei red. A.V.Lebedinskogo. 1959. 515 p. (MIRA 14:7)

1. Vtoraya mezhdunarodnaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Zheneva, 1958. 2. Chlen-korrespondent AMN SSSR (for Lebedinskiy)
(RADIOBIOLOGY) (ATOMIC MEDICINE)

SHIROKOVA-DIVAYEVA, prof.

Urgent tasks in the hygiene of children and adolescents in the Uzbek S.S.R. in relation to the law on the reorganization of popular education. Med. zhur. Uzb. no.8:15-17 Ag '60. (MIRA 13:9)

(UZBEKISTAN--EDUCATION, SECONDARY)
(MANUAL TRAINING--HYGIENIC ASPECTS)

EXCERPTA MEDICA Sec.17 Vol.4/4 Public Health,etc.Apr 58

Shirokova-Divayeva, V.P.

1308. ASSESSMENT OF INDICATORS OF PHYSICAL DEVELOPMENT IN CHILDREN USING THE COLLECTIVE PROFILE METHOD (Russian text) - Shirokova-Divayeva V. P. - ZAP. SOTS. ZDRAVOOKH. UZBEK. 1956, 4 (51-54)

The method suggested by the author for the evaluation of the physical development of children according to anthropometric data was tested on 16 children's homes where the number of children totalled 960, and was found to be justified as a sanitary index. (S)

AUTHORS: Sesekin, N.F., and Shirokovskaya, O.S. SOV/39-46-2-1/6
(Sverdlovsk)

TITLE: On a Class of Two-Stage Groups (Ob odnom klasse dvustupennykh grupp)

PERIODICAL: Matematicheskiy sbornik, 1958, Vol 46, Nr 2, pp 133-142 (USSR)

ABSTRACT: The authors investigate non-abelian groups different from their commutator group, and all the normal divisors of which are commutative (Be-groups). If the factor group with respect to the commutator group of the Be-group is primary cyclic, then the Be-group is called a Be$_1$-group. If the factor group is a direct product of two primary cyclic groups, then the initial group is called a Be$_2$-group.

Theorem: In order that G is a Be$_2$-group it is necessary and sufficient that G is a finite p-group, the commutator group K of which is cyclic and of prime order p, where G/K is the direct product of two primary cyclic groups; furthermore G has to possess a center Z so that G/Z is the direct product of two cyclic groups of p-th order.

Theorem: G is a Be$_1$-group then and only then if G/K is a cyclic group, the order of which is a power of a prime number p, and if G has an abelian subgroup M containing K and having the index p.

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On a Class of Two-Stage Groups SOV/39-46-2-1/6

Theorem: A group different from its commutator group, all the subgroups of which are commutative, either is commutative itself or it is a finite group of the type of Miller-Moreno [Ref 1]. Two further theorems contain detailed results on p-primary Be_1-groups, where the notions of Chernikov [Ref 4] are used.

There are 5 references, 2 of which are Soviet, 1 German, 1 American, and 1 Swiss.

SUBMITTED: February 20, 1957

Card 2/2

AID P - 5254

Subject : USSR/Engineering

Card 1/1 Pub. 11 - 5/15

Authors : Gupalo, Yu. D., B. A. Movchan, and P. M. Shirokovskiy (Electrowelding Institute im. Paton)

Title : Use of radioactive isotopes to control the level of metal melt in the resistance slag welding vat.

Periodical : Avtom. svar., 4, 67-69, Ap 1956

Abstract : The authors describe the utilization of radioactive isotopes for control of level of melting metal in the vat of resistance slag welding. A special automatic regulator was designed and tested by the Electrowelding Institute im. Paton. Two drawings; 3 Russian references (1953-55).

Institution : As above

Submitted : No date

SHIROKOVSKIY, R.M.

125-58-4-14/15

AUTHORS: Lashkevich, R.I., Candidate of Technical Sciences, Grodetskiy, Yu.S., Engineer, Shirokovskiy, R.M., Engineer

TITLE: Guiding Device for Automatic Welding (Sledyashsheye ustroystvo dlya avtomaticheskoy svarki)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 4, pp 92-94 (USSR)

ABSTRACT: The described device, developed at the Electric Welding Institute imeni Paton, automatically directs electrodes in difficult-to-reach spots, in particular in welding inside seams on large-diameter gas line pipes. Prior to welding, a "bearing line" must be traced on one of the pipe blank edges with the use of a special floating cutter head (Figure 1) which is attached to the end of the top crosshead beam on an edge finishing mill. The electrical system of the device (shown in Figure 2), comprises a guide block consisting of a bridge with two semi-conductor photo-resistances and an optical system, a phase-sensitive amplifier, an electric machine amplifier, and an electric mechanism switching in the motor and the reductor. The guide block is mounted on the welding nozzle or on the welding head housing. The image of the "bearing

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Guiding Device for Automatic Welding

125-58-4-14/15

line" falls on the photo-resistances, and when they are lit equally - the bridge is in balance. Even a slight displacement of electrodes from the center line on the blank causes a displacement of the guide block from the "bearing line", which in turn causes a signal and actuates the machine amplifier. The polarity of the signal determines the rotation direction of the motor and hence a displacement of the electrodes back to coincidence with the center line. It was shown in long tests at the Khartsyzskiy trubnyy zavod (Khartsyzsk Pipe Plant) that the displacement of electrodes from the weld center does not exceed 1 mm to one or the other side. The device is reliable and does not require highly-skilled operators. It is recommended for use in the production of pipes. There is 1 photo and 1 figure.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR (Electric Welding Institute imeni Ye.O. Paton of the AS UkrSSR)

SUBMITTED: December 28, 1958

AVAILABLE: Library of Congress

Card 2/2

9(6) SOV/119-59-9-14/19

AUTHOR: Shirokovskiy, R. M.

TITLE: An Electronic Vectometer

PERIODICAL: Priborostroyeniye, 1959, Nr 9, pp 27-28 (USSR)

ABSTRACT: In the measuring technique one often has to measure the absolute value and phase of the sinusoidal voltage of an alternating current. For a sufficiently wide range of frequencies this problem can be solved by means of an electronic vectometer with deflections $\alpha = kU_m\cos\varphi$,where k denotes a constant coefficient, U_m the amplitude of the voltage to be measured, φ the phase angle between control voltage and voltage to be measured. The block diagram of the electronic vectometers used for these measurements is shown in a figure. The unknown voltage is connected with the input terminals of the two amplifiers A_1 and A_2 by a voltage divider and a cathode follower. The amplification factors of the amplifiers A_1 and A_2 is 100 and 1000,respectively. From the amplifier A_1 the unknown voltage passes to the input of

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the electronic vectometer which is connected as described in the paper by L. Ya. Mizyuk (Ref 2), with the only difference that in the present case the electronic vectometer is controlled by the output voltage of amplifier A_2, which is the voltage to be measured. This voltage is transformed to rectangular pulses. A voltage divider with a corrector in the instrument was used for the purpose of obtaining a broad-band apparatus. The two cathode followers K_1 and K_2 are to ensure a minimum influence of the input circuits on the voltage dividers. Both amplifiers are designed according to a rheostat scheme. The electronic vectometer EV is essentially a measuring device for mean values. A moving iron microammeter M-24 for 100 microampere is used as indicator. The theoretical principals of the operating mode of this instrument in the electronic vectometer had been investigated fairly thoroughly by L. Ya. Mizyuk (Ref 2) and was not discussed in the present paper for this reason. Operation of the vectometer is controlled by an output mechanism. In the range of from 50 - 5000 cycles the vectometer warrants measurement of the absolute voltage value with an error of 2%

at the utmost, and a phase of at most 4%. To illustrate the operating mode of the apparatus the author publishes the oscillograms of the voltage at the indicator at a frequency of 1000 cycles during measurement of the modulus and phase of the voltage at a phase angle of 45°. The anode circuits of the apparatus were supplied by a rectifier with an electronic stabilizer. The heating circuits of the tubes are supplied by an unstabilized alternating current. There are 3 figures, 1 table, and 2 Soviet references.

SOV/125-12-2-10/14

18(5)

AUTHOR: Sakhatskiy, G.P., and Shirokovskiy, P.M.

TITLE: Perfecting the Technology for the Welding and Heat Treatment of Carbonaceous (Cable) Wire (Usovershenstvovaniye tekhnologii svarki i termicheskoy obrabotki uglerodistoy (kanatnoy) provoloki)

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 2, pp 76-86 (USSR)

ABSTRACT: The weak point in the accepted welding technique at present is the insufficient stability of the mechanical properties of welded joints. The object of the research described here was to compare various methods of welding at the junction of cable wires, to select the optimum systems for welding and heat treatment and to design equipment which automatically ensures the selected conditions of heat treatment in welding a joint. The work was done in collaboration with the Odessa Cable Factory. The article devotes a page to a comparison of methods, discussing condenser, press and contact welding by smelting and

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SOV/125-12-2-10/14

Perfecting the Technology for the Welding and Heat Treatment of Carbonaceous (Cable) Wire

by resistance. The circuit diagram for an experimental condenser welding machine is shown. Press welding of fine cable wire was found impracticable with normal techniques, which are to be further developed. Contact welding by resistance was found the best method as regards ease of use and mechanical properties of the welds. The article deals with the selection of the best methods for contact resistance welding, giving a table of methods varying with diameter of the wire and welding equipment used. One page describes the selection of a heat treatment system, and 2 pages deal with the heat treatment machinery (2 circuit diagrams, photograph and a graph). The penultimate section deals with the mechanical properties of welded joints, giving a table of various types of steel and varying diameters after the welding and heat treatment methods described earlier. Conclusions of the article are that in selecting the basic parameters for a system of contact resistance welding, the minimum duration must be attained. Secondly the heat treatment

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SOV/125-12-2-10/14

Perfecting the Technology for the Welding and Heat Treatment of Carbonaceous (Cable) Wire

after welding is decisive in obtaining optimum mechanical properties. Isothermic hardening on a sorbite structure permits considerably better mechanical properties of carbonaceous wire than does normalization. Finally the equipment described automatically carries out the set cycle of heat treatment and ensures stable mechanical properties. There are 3 circuit diagrams, 6 illustrations, 2 tables and 1 graph.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki imeni Ye.O.Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye.O.Paton of the AS UkrSSR)

SUBMITTED: November 20, 1958

Card 3/3

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1.2300

24778
S/125/61/000/008/005/014
D053/D113

AUTHORS: Shirokovskiy, R.M., and Lashkevich, R.I.

TITLE: A servomechanism with an inductive pickoff for automatic welding

14

PERIODICAL: Avtomaticheskaya svarka, no. 8, 1961, 58-61

TEXT: The authors describe a servomechanism for aligning the electrodes of a triple-arc automatic welder for longitudinal welding of large-diameter tubes, which was designed by the Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Paton AS UkrSSR). A schematic diagram of this servomechanism is given in Fig. 3. Its electronic circuit includes three E-pickoffs (P_1, P_2 and P_3), an amplifier (I) of the differential output voltage from P_1, a high-frequency supply (II) for the E-pickoffs, a unit (III) for switching the P_1 on and off on command from the P_2 and P_3, and a power supply (IV). The amplified differential voltage is applied to

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S/125/61/000/008/005/014
D053/D113

A servomechanism with an inductive pickoff...

the amplidyne (AM), the output of which is connected to the armature of the dc motor (M) which has a separate excitation. The motor (M) actuates the corrector (C) of the electrode positions in the automatic welder (AW) through the reductor (R). The three E-pickoffs (P_1, P_2 and P_3) are supplied with 6 - 8 vac, 3,000 cps. This servomechanism was tested on an automatic tube welder at the Chelyabinskiy truboprokatnyy zavod (Chelyabinsk Pipe-Rolling Mill). More than 500 tubes, 720 mm in diameter and 12 m long, were welded. The tubes were continuously fed and the welding rate was 120 m/hour. The results indicated that the weld quality was entirely satisfactory. The E-pickoff can independently locate the edges of the tube when their displacement from the axis of the welding stand is no more than ± 30 mm. It also can automatically set the electrode on the joint line, and keep the electrode on the joint line during the welding process with a ± 2 mm accuracy. In the near future, this servomechanism will be adopted for production lines in electric tube-welding shops, thus increasing the output and improving the weld quality of large-diameter tubes for pipelines. There are 4 figures and 3 Soviet-bloc references.

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S/125/61/000/008/005/014
D053/D113

A servomechanism with an inductive pickoff...

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Paton of the AS UkrSSR)

SUBMITTED: January 9, 1961

Card 3/4

SHIROKOVSKIY, R.M.; SHCHIGEL'SKIY, V.M.

Induction transducer of displacement with linear scale. Avtom. svar. 15 no.3:84-85 Mr '62. (MIRA 15:2)

1. Ordena Trudovogo Krasnogo Znameni institut elektrosvarki imeni Ye.O. Patona AN USSR.

(Electric welding)
(Automatic control)

SAKHATSKIY, G.P.; SHIROKOVSKIY, R.M.

Resistance welding and heat treatment of high strength carbon wire. Stal' 22 no.2:180-185 F '62. (MIRA 15:2)

1. Institut elektrosvarki im. Ye.O. Patona AN USSR.
(Wire--Welding)

SAKHATSKIY, G.P.; SHIROKOVSKIY, R.M.

Welding and thermal treatment of high-strength reinforcement wire. Prom.stroi. 40 no.8:42-45 '62. (MIRA 15:11)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.
(Concrete reinforcement)

SHIKOKOVSKIY, R. M.

AID Nr. 995-8 21 June

CONFERENCE ON AUTOMATIC CONTROL OF WELDING PROCESSES (USSR)

Avtomaticheskaya svarka, no. 4, Apr 1963, 95-96.
S/125/63/000/004/011/011

At a conference held on 27-28 December 1962 under the auspices of the Electric Welding Institute, Ukrainian Academy of Sciences, numerous papers were delivered reporting on results of research in the field of automatic control of welding processes. Academician B. Ye. Paton reported on achievements in the research and development of new automatic control systems for arc, electroslag, resistance, and electron-beam welding, giving particular attention to program and cybernetic systems. M. P. Zaytsev's report dealt with contactless ferro-transistor control systems for resistance welders. Engineer P. L. Chuloshnikov spoke on instruments for measuring resistance-welding parameters, as well as on control devices and resistance welders for light alloys. Engineers A. P. Obolonskiy and A. B. Koval' presented papers on automatic-control systems for electron-beam welding. Engineer R. M. Shirokovskiy discussed automatic guiding of the electrode along the joint in welding gas pipes. [WB]

Card 1/1

AID Nr. 995-8 21 June

CONFERENCE ON AUTOMATIC CONTROL OF WELDING PROCESSES (USSR)

Avtomaticheskaya svarka, no. 4, Apr 1963, 95-96.
S/125/63/000/004/011/011

At a conference held on 27-28 December 1962 under the auspices of the Electric Welding Institute, Ukrainian Academy of Sciences, numerous papers were delivered reporting on results of research in the field of automatic control of welding processes. Academician B. Ye. Paton reported on achievements in the research and development of new automatic control systems for arc, electroslag, resistance, and electron-beam welding, giving particular attention to program and cybernetic systems. M. P. Zaytsev's report dealt with contactless ferrotransistor control systems for resistance welders. Engineer P. L. Chuloshnikov spoke on instruments for measuring resistance-welding parameters, as well as on control devices and resistance welders for light alloys. Engineers A. P. Obolonskiy and A. B. Koval' presented papers on automatic-control systems for electron-beam welding. Engineer R. M. Shirokovskiy discussed automatic guiding of the electrode along the joint in welding gas pipes. [WB]

Card 1/1

L 28472-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/T/EWP(1)/EWP(v)/EWP(t)/ETI JD/HM

ACC NR: AP6010142 SOURCE CODE: UR/0125/66/000/003/0042/0045

36
B

AUTHOR: Shirokovskiy, R. M.

ORG: Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: Accuracy of orientation of the electrode with respect to axis of welded joint in electric arc welding machine 14

SOURCE: Avtomaticheskaya svarka, no. 3, 1966, 42-45

TOPIC TAGS: welding electrode, arc welding, welding technology, butt welding, low carbon steel

ABSTRACT: Precise orientation of the electrode in automatic arc welding 18 demands a great deal of the welder's attention and is a laborious operation. Hence, devices for automating this operation as well are needed; but before they can be developed, it is necessary to clearly define the error margin which they will involve owing to fluctuations in the power and design parameters of welding regimes and the overlap of the welded edges. In this connection, the author derives the pertinent formulas: It is shown that the permissible error of electrode orientation with respect to butt-joint axis during submerged arc welding, can be analytically determined if weld width, depth of penetration and thickness of the sheets of the butt-joined metal are

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ACC NR: AP6010142

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known. Formulas for permissible error x_{perm} that take into account perturbances such as fluctuations in welding current I_w and arc voltage. U_{arc} the geometry of joint edges and the gap or overlap between these edges, also are derived, for both single- and double-fillet welding. Thus, e.g. x_{perm} for single-arc double-fillet welding of butt joints of 8 mm thick sheets of low-carbon steel (non-Vee weld, $I_w = 400$ a, $U_{arc} = 36$ v, welding rate $v_w = 20$ m/hr, weld width 21 mm, depth of penetration $h = 6$ mm; edge overlap $m = 2$ mm), on taking the order of root as $n = 1.5$, is

$$x_{perm} < \frac{21}{2}\sqrt[1.5]{1 - \frac{8}{2\cdot 6}} \approx 5 \text{ mm}$$

For $\Delta I_{arc} = 0.1\ I_{arc}$ and $\Delta U_{arc} = 0.1\ U_{arc}$ we have:

$$\Delta h = 1.5\cdot 10^{-2}\cdot 40 + 3\cdot 10^{-2}\cdot 3.6 \approx 0.7 \text{ mm}$$

$$\Delta b + 4\cdot 10^{-2}\cdot 40 + 18\cdot 10^{-2}\cdot 3.6 \approx 2.3 \text{ mm}$$

$$\Delta h_m = \frac{2}{2} = 1 \text{ mm}$$

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ACC NR: AP6010142

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Hence

$$x_{perm} \leqslant \frac{21 - 2.3}{2}\sqrt{1 - \frac{8 + 2}{2(6 - 0.7 + 1)}} \approx 3.2 \text{ mm}$$

SUB CODE: 13, 11/ SUBM DATE: 24Jun65/ ORIG REF: 006

Card 3/3 CC

USSR/Theoretical Physics - Quantum Mechanics. B-4

Abs Jour : Ref Zhur - Fizika, No 4, 1957, 8414

Author : Sokolov, A.V., Shirokovskiy, V.P.
Inst : Institute of Physics of Metals of the Ural Branch of the USSR.
Title : Group Theory and Complete Set of Physical Quantities in Quantum Mechanics.

Orig Pub : Fiz. metallov i metallovedeniye, 1956, 3, No 1, 22-25

Abstract : In the absence of a quantum mechanical system, the states of this system can be classified with the aid of the eigenvalues of the Hamiltonian operator. In the case of degeneracy, when one has integrals of motion that do not commute with each other, it is possible to obtain the function of the integrals of motion, which has the same value in all states, corresponding to a definite energy level, so that with the aid of this function it is possible to classify the energy levels of this system. It is

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USSR/Theoretical Physics - Quantum Mechanics

B-4

Abs Jour : Ref Zhur - Fizika, No 4, 1957, 6414

shown that in the general case there are several such functions, and that they coincide with the classes of conjugate elements of the group that leaves the Hamiltonian invariant. The eigenvalues of the classes together with the eigenvalues of the commuting generating elements of the group comprise a complete set of physical quantities, necessary for the description of the above quantum-mechanical system.

Card 2/2

SHIROKOVSKI

CARD 1 / 2 PA - 1860

SUBJECT USSR / PHYSICS
AUTHOR SOKOLOV,A.V., ŠIROKOVSKIJ,V.P.
TITLE The Method of the Group Theory in the Quantum Physics of a Solid
PERIODICAL Usp.fis.nauk,60, fasc.4, 617-688 (1956)
Issued: 1 / 1957

This method is explained here in a manner that makes it accessible for a large circle of physicists. The present work comprises the theoretical material on point symmetry and above all investigates the laws of conservation as well as the problem of the complete set of physical quantities. This work is arranged as follows: the symmetry of physical systems and their connection with the group theory; the elements of the group theory; the basis of the theory of representation; computation of characters; the product of representations; the representation of the rotation group; infinitely small transformations; the octahedron group; the application of the group theory in quantum mechanics; the laws of conservation and the complete set of physical quantities; the problem of the hydrogen atom; the states of the electron in the crystal field; the splitting up of atomic terms in crystal without and with consideration of spin; selection rules.

Summary: On the basis of the here discussed general principles of the investigation of quantum mechanic systems by means of the group theory it may be recognized that the problems forming the basis of quantum mechanics and the quantum physics of solids can be thoroughly and completely investigated only by means of the group theory. The symmetry properties of the physical systems

Usp.fis.nauk,60, fasc.4, 617-688 (1956) CARD 2 / 2 PA - 1860

must be applied more than before for the solution of concrete problems and in particular in the case of complicated quantum-mechanic systems. It is necessary to obtain the greatest possible number of results by general methods. Besides, the conclusions arrived at by the group theory are very strict because of the phenomenological character of the theory of symmetry itself. The principles mentioned here are suited for the investigation of any quantum-mechanic systems and furnish results which will be all the more complete the higher the symmetry of the problem. These general principles are here illustrated on the basis of three complete problems: the determination of the electron states of a system from its symmetry properties, splitting up of atomic terms in a field with a certain symmetry, selection rules for the quantum transitions in a crystal. The group theory is of even greater importance for the investigation of the zone structure of the energy spectrum of solids. Particular importance attaches to the problem of band unification in consideration of complete spatial symmetry. Spin-orbit-coupling partly does away with this unification. Group theoretical methods are suited also for taking account of interaction among electrons, i.e. for a purely multi-electron problem.

INSTITUTION:

[illegible]

AUTHOR: Sokolov, A.V. and Shirokovskiy, V.P. 100

TITLE: Description of the electron states in a cubic crystal. (Opisanie elektronnykh sostoyaniy v kubicheskom kristalle.)

PERIODICAL: "Fizika Metallov i Metallovedenie" (Physics of Metals and Metallurgy). 1957, Vol. IV, No.1, (10), pp.3-8, (U.S.S.R.)

ABSTRACT: The aim of this paper is to describe the electron states in a cubic crystal on the basis of the relations between the laws of conservation and the symmetry properties of systems. For an electron in the field of cubic symmetry the conserved parameters are: the electron energy, the quasi-moment of the momentum described by the operator of the class $\hat{K}(u)$ and the projection of the quasi-moment of the momentum on the z axis described by the operator $(-iL_z u)$. Exact but non-linear equations were derived for determining the eigenfunctions and the eigenvalues of the quasi-moment and of the quasi-projection for an electron in the field of a crystal of cubic symmetry. An approximate solution was derived of these equations and eigenvalues and eigenfunctions of operators were determined which correspond to these conserved quantities, and thereby the harmonic form of the wave functions of the Hamiltonian for the electron in the field of a cubic crystal. The method described permits determination of the operators of the physical parameters which remain conserved in the movement of an electron in the field of any type of symmetry.

100

Description of the electron states in a cubic crystal. (Cont.)

2 tables. There are five references, four of which are Soviet.

Metal Physics Institute, Ural Branch Ac.Sc. Recd. May 15, 1956

AUTHOR: Shirokovskiy, V. P. SOV/126-6-1-1/33

TITLE: Electronic States in Crystals (Elektronnyye sostoyaniya v kristallakh)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, No 1, pp 3-14 (USSR)

ABSTRACT: The paper presents a study of the energy spectrum in a crystal, using group theory methods applied to the symmetry properties of the crystal field. The space-group transform Eq.(2) is applied to Eq.(1) (Shrödinger equation); the subsequent treatment follows that of Seitz, (Ref.4), and leads to Eq.(6), which gives the rule for determining the matrix elements conjugate to any given element. The eigenfunctions of the operator subgroup Eq.(7) are taken as the Bloch functions Eq.(8). The subsequent development down to Eq.(10b) is straightforward. Section I then deals with the detailed application to one of the two cases to be considered, namely a straight chain (one-dimensional periodic field). The method used is to select group elements from the class of conjugate elements, transforming each such element into all its conjugates. The eigenvalues of the operators are then derived; the argument is not presented

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Electronic States in Crystals SOV/126-6-1-1/33

in full, as some results are taken direct from Ref.(5). The energy spectrum is shown to show discontinuities at $k = \pi n/a$, i.e. to show discrete bands. The section concludes with a very brief discussion of a model of such an energy spectrum (Fig.1). The second section (two-dimensional lattice) extends the treatment to the case where the Schrödinger equation is invariant against transforms proper to the point-group C_{4v}. The properties of the space-group elements, the energy terms, the degeneracy, and the eigenvalues of the operators are tabulated. The general conclusions and treatment consist of a more detailed repetition of section I.

There are 2 figures, 2 tables, 25 numbered equations and 10 references, 2 of which are Soviet 7 English 1 German

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR (Institute of Metal Physics, Ural Branch of the Ac.Sc.USS

SUBMITTED: November 1, 1956.

Card 2/2 1. Crystals--Theory 2. Electron energy--Spectrum 3. Mathematics--Applications

PHASE I BOOK EXPLOITATION SOV/4959

Ural'skoye soveshchaniye po spektroskopii

Materialy 2 Ural'skogo soveshchaniya po spektroskopii, Sverdlovsk, 1958 g. (Materials of the Second Urals Conference on Spectroscopy, Held in Sverdlovsk, 1958) Sverdlovsk, Metallurgizdat, 1959. 206 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agency: Ural'skiy filial Akademii nauk SSSR. Komissiya po spektroskopii and [illegible] Ural'skiy Dom tekhniki VNITO.

Eds.: [illegible] Shayevich [illegible] Tech. Ed.: [illegible] M. [illegible]

PURPOSE: This collection of articles is intended for spectral analysis laboratory workers at ferrous and nonferrous metallurgical plants, and for laboratory personnel of the metal-working industry, geological and prospecting organizations, and similar scientific research laboratories.

COVERAGE: The collection contains papers read at the Second Urals Conference on the spectral analysis of ferrous and nonferrous metals and alloys, slags, ores, agglomerates, refractories and other materials used in industry. The material of the conference includes articles on the analysis of steels (including the determination of gases), ferroalloys, nonferrous and light metals and alloys, pure noble metals, etc. The present volume is intended to disseminate the latest experience in working with spectral laboratories, and to report on the results of scientific research. The author thanks N. I. Osthina and Yu. M. Buravlev. Almost all of the articles are accompanied by references.

Zolotukhin, G. Ye. Investigation of the Interaction of the Components of an Alloy on the Degree of Ionization of Atoms 25

Aleshkovskiy, Yu. M. Some Distribution Characteristics of Particles in an A-C Arc 29

Zolotukhin, G. Ye. Investigation of Evaporation Kinetics of Oxidizing Metallic Electrodes of an Arc 36

Sokolov, A. V., G. I. [illegible], and V. P. Shirokovskiy. Double Refraction of Uniaxial Semiconductor Crystals 39

Buravlev, Yu. M. Problem of the Entry of the Probe Material Into the Radiating Cloud During the Spectral Analysis of Steel 42

Mal'tsev, M. G., and E. I. [illegible]. Application of Contact Electric Spark Transfer for Eliminating the Effect of Composition, Structure, and Mass of Samples During the Spectral Analysis of Certain Alloys 50

Buravlev, Yu. M., Z. F. [illegible], and V. I. Vetrova. Investigation of the Effect of Structure on the Spectral Analysis Results of Structural Steel 56

Buravlev, Yu. M., V. I. Ustinova, and D. Ya. [illegible]. Effect of Tungsten on the Results of the Spectral Analysis of High-Speed Cutting Steel 61

Buyanov, B. V., S. L. [illegible], G. V. Kovalenko, V. F. [illegible], and V. N. [illegible]. Spectral Analysis of Steel With a Modernized FES-1 Instrument 64

Sventitskiy, N. S. Spectral Analysis of Gases Contained in Metals 70

Shayevich, A. B. Spectral Analysis of Multicomponent Systems With a High and Varying Content of Components 79

Shayevich, A. B., N. A. Perepelkina, and N. A. [illegible]. Spectral Analysis of 45% and 75% Ferrosilicon 87

Kalinskiy, Ya. M., A. B. Shayevich, V. V. Bugrina, N. I. [illegible], and N. A. Perepelkina. Spectral Analysis of Ferroniobium, Ferrotitanium, and Titanium Concentrate 91

Kozlova, A. V. Role of Internal Standard in the Spectral Analysis of Various Ferroalloys 98

Kalinskiy, Ya. M., V. V. Bugrina, and A. K. Tumanov. Spectral Analysis of Chrome-Base Alloys 105

Lobova, L. D. Spectral Methods of Analyzing Products of the Magnesium and Titanium Industry 110

Fomina, G. A. Application of Spectral Analysis at the Severskiy Metallurgical Plant 112

Gavrilov, G. I., and L. G. [illegible]. Spectral Analysis at the "Uralsel'mash" Plant 114

67027

SOV/137-59-10-22618

24.7700

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 10, p 200 (USSR)

AUTHOR: Shirokovskiy, V.P.

TITLE: Optical Absorption in Semiconductors

PERIODICAL: Tr. In-ta fiz. metallov AS USSR, 1959, Nr 22, pp 27 - 31

ABSTRACT: The author discusses theoretically light absorption by free carriers (absorption due to acceleration of electrons or holes by the field of the light wave). The behavior of electrons or holes is investigated only in one energy band. From the solution of the kinetic equation the author finds the perturbed function of distribution f. $(\vec{k})$. He uses the hypotheses that 1) the light wave field in the specimen is homogeneous; 2) the processes of current carrier dispersion are described by the relaxation time τ depending solely on the energy; 3) the energy spectrum is quadratic in k; 4) the function of the distribution of particles without the field is the Maxwell-Bolzmann function. A formula was found for the light conductivity $\sigma(\omega)$ and polarizability $\alpha(\omega)$. It is stated that the rigorous determination of $\sigma(\omega)$ can be carried out for any dispersion mechanism known at

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Optical Absorption in Semiconductors

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present. The author analyzes also the case when two groups of current carriers are present, allowing for the possibility of transition of particles of one system into particles of the other system, as a result of perturbation by the light wave field (Transition from one energy minimum to another one). The allowance for such a possibility entails the occurence of a series of extrema on the σ (ω) curve, causing, in turn, extrema on the absorption curve.

4

T.R.

Card 2/2

SHIROKOVSKIY, V. P., Cand Phys-Math Sci - (diss) "A group theory method in the electronic theory of semi-conductors." Sverdlovsk, 1960. 14 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Uralskiy State Univ im A. M. Gor'kiy); 150 copies; price not given; bibliography at end of text; (KL, 19-60, 130)

69682

S/126/60/009/03/001/033
E032/E414

24.7600

AUTHORS: Tsidil'kovskiy, I.M. and Shirokovskiy, V.P. 21

TITLE: The Anisotropy of Galvano- and Thermomagnetic Phenomena in n-Type Germanium 21

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3, pp 321-326 (USSR)

ABSTRACT: The authors have carried out extensive calculations in order to elucidate the effect of the anisotropy in the effective mass of electrons on galvano- and thermomagnetic phenomena in n-type germanium. The following assumptions were made: 1) The energy surface has three extrema located on the diagonals of the elementary cube. Near each of these extrema the energy is of the form given by Eq (1), where h is Planck's constant divided by 2π and m_l and m_t are the longitudinal and transverse effective masses. The actual position of the extrema on the diagonals is unimportant in galvano- and thermomagnetic calculations. 2) Kinetic effects are associated only with transitions between states of a given extremum. On this approximation the carrier currents for each extremum are independent and the total 4

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The Anisotropy of Galvano- and Thermomagnetic Phenomena in n-Type Germanium

current is the sum of the currents associated with the separate extrema. 3) Collision processes are described by a relaxation time τ which is isotropic and depends only on the energy of the electrons ε which is given by Eq (2). The tapping of electrons by phonons is not taken into account. The electric current $\vec{j}$ and the heat carried by the electrons $\vec{Q}_z$ are calculated using Eq (3), (4), (5) and (6). Three cases are considered: 1) The coordinate axes x, y, z coincide with the principal axes of the cube; 2) the z-axis lies along one of the diagonals of the face and x and y axes are at equal angles to the principal axes of the cube; 3) the z-axis is along one of the diagonals of the cube and the x and y axes are at equal angles to the principal axes of the cube. The results of calculations are summarized in Tables 1, 2 and 3, in which σ_0 is the electrical conductivity, u is the electron mobility, N is the electron concentration, $\lambda_э$ is the electron thermal conductivity and λ is the total thermal

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The Anisotropy of Galvano- and Thermomagnetic Phenomena in n-Type Germanium

conductivity. Other parameters are defined by the equations at the top of p 323. Table 1 summarizes the galvanomagnetic phenomena (first column gives the effect, second column refers to weak fields and the third column to strong fields). Table 2 gives the thermomagnetic phenomena and Table 3 indicates the direction of the magnetic field. It is clear from these tables that the parameters which characterize the anisotropy of the effects enter into the formulae as coefficients of terms which depend on the scattering mechanism, ie the formulae for galvano- and thermomagnetic phenomena in the anisotropic case can be formally obtained from the corresponding formulae for the isotropic case by a simple renormalization of the coefficients a_p, b_p and c_p. Since the constants responsible for anisotropy enter into the formulae for all the effects together with terms containing the magnetic field, the experimental determination of these constants in a transverse magnetic field is rather

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E032/E414

The Anisotropy of Galvano- and Thermomagnetic Phenomena in n-Type Germanium

difficult. Of the effects which tend to saturate in strong magnetic fields, only the resistance is appreciably dependent on direction. The anisotropy parameter γ can be determined from a known magnitude of the saturated $\rho^{\perp}$. Other experimental possibilities are briefly mentioned. There are 2 figures, 3 tables and 2 references, 1 of which is Soviet and 1 English.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, AS USSR)

SUBMITTED: July 21, 1959

4

Card 4/4

S/053/60/071/03/04/008
B006/B063

AUTHORS Sokolov, A. V. Shirokovskiy, V. P.

TITLE The Group-theoretical Method in Solid-state Quantum Physics (Spatial Symmetry)

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol. 71, No. 3, pp. 485-513

TEXT: In this article, the authors outline the fundamental ideas of the application of group-theoretical methods to solid-state quantum physics since a systematic representation has not been available so far in Soviet publications. The article contains the theoretical material on spatial symmetry. The introduction gives a brief survey of publications on this subject, and describes the specific purpose of the article. § 2 deals with the operations of spatial symmetry. The theory of space groups is thoroughly discussed on the basis of group-theoretical details given in § 3. § 4 deals ith the space groups, their setup from the well-known representation of the 32 point groups, and their properties. § 5 is devoted to the general theory of space group representation. Next, the authors describe the possible

Card 1/2

The Group-theoretical Method in Solid-state
Quantum Physics (Spatial Symmetry)

S/053/60/071/03/04/008
B006/B063

implifications of space group representation, and the group-theoretical ystem obtained is finally used to describe the band structure of a solid § 7). § 8 describes a general method devised by V. P. Shirokovskiy (Ref. 10) for examining the energy spectrum and classifying states. This method is termed the method of the linear chain. § 9 deals with the electrons in the field of a crystal of cubic-symmetry, gives a description of the energy spectrum, and changes therein. § 10 studies the states of electrons including the energy of spin-orbit interaction. The problem as to whether the Hamiltonian is invariant with respect to time reversal is studied in § 11, and rules are given for the determination of additional degeneration of spin-1/2 particles and particles without spin. The article is supplemented by some concluding remarks (§ 13), and mention is made of Ye. Lifshits and L. Landau. There are 4 tables and 14 references: 4 Soviet, 4 American, 1 British, and 3 German.

Card 2/2

VOLKENSHTEYN, N.V.; FEDOROV, G.V.; SHIROKOVSKIY, V.P.

Anisotropy of the Hall effect in ferromagnetic materials. Fiz. met. i metalloved. 11 no. 1:152-154 Ja '61. (MIRA 14:2)

1. Institut fiziki metallov AN SSSR.
(Ferromagnetic materials) (Hall effect)

TSIDIL'KOVSKIY, I.M.; SHIROKOVSKIY, V.P.

Anisotropy of galvano and thermomagentic phenomena in electron germanium. Fiz.met.i metalloved. 9 no.3:321-326 Mr '60. (MIRA 13:6)

1. Institut fiziki metallov AN SSSR.
(Germanium--Electric properties) (Anisotropy)

SHIROKOZHUKHOVA, M.P.

Effect of growing conditions on the seed quality of potatoes.
Agrobiologiia no.6:929-931 N-D '59. (MIRA 13:4)

1. Voronezhskiy sel'skokhozyaystvennyy institut.
(Seed potatoes)

SHIROKOZHUKHOVA, M.P., kand. sel'skokhoz. nauk

Viability of summer-grown potatoes during storage. Agrobiologiia no.4:538-542 Jl-Ag '65. (MIRA 18:11)

1. Voronezhskiy sel'skokhozyaystvennyy institut.

BRYLEYEV, Arkadiy Mikhaylovich, doktor tekhn. nauk, prof.; FENKIN, Nikolay Fedorovich, kand. tekhn. nauk; PUGIN, Daniil Kalistratovich, kand. tekhn. nauk; SHARIKOV, Vladimir Alekseyevich, inzh. Prinimal uchastiye DMITRENKO, I.Ye., inzh.; SHIROKSHIN, K.A., inzh., retsenzent; MARENKOVA, G.I., inzh., red.; NOVIKAS, M.N., inzh., red. USENKO, L.A., tekhn. red.

[Transistorized and magnetic noncontact devices of centralized traffic control systems] Poluprovodnikovye i magnitnye beskontaktnye pribory v ustroistvakh STsB. [By] A.M.Bryleev i dr. Moskva, Transzheldorizdat, 1962. 230 p. (MIRA 15:5)

(Railroads--Electronic equipment)
(Railroads--Signaling--Centralized traffic control)

SOV/91-58-2-5/31

AUTHORS:	Gordeyev, S.D., Technician, and Shirokshin, Ye.A., Engineer
TITLE:	On the Automatic Switch-Off of the Turbine from the Steam Duct if Water is Spattered Into it (Avtomaticheskoye otklyucheniye turbiny ot paroprovoda pri zabrose v nego vody)
PERIODICAL:	Energetik, 1958, Nr 2, p 10 (USSR)
ABSTRACT:	If water is spattered into the turbine, the steam-pass section of the turbine gets damaged. A new automatic device aimed at preventing this, has been installed at the mobile power station Nr 45. The new automatic device works on the basis of the electroconductivity of the boiler water. The possibility of spurious operation of the new system is eliminated by means of a screen-cover installed above the contacts' plug. The

Card 1/2

SOV/91-58-2-5/31

On the Automatic Switch-Off of the Turbine from the Steam Duct if Water is Spattered Into it

editor remarks that water spattering is almost eliminated in the new type boilers. Occasionally, spattered water evaporates in the steam duct. There is 1 schematic diagram.

Card 2/2

51-4-1-11/26

AUTHORS: Shirokshina, Z. V. and Suykovskaya, N. V.

TITLE: Preparation of Translucent Films which are Transparent in the Infrared Spectral Region. (Polucheniye prosvetlyayushchikh plenok, prozrachnykh v infrakrasnoy oblasti spektra.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.1, pp. 82-86. (USSR)

ABSTRACT: The authors used ethyl esters of orthosilicic, orthotitanic and orthogermanic acids, and chlorides of tin and antimony. Films were made by depositing a small amount of solution on a surface of a rotating glass or crystal plate. By hydrolysis of the solution and evaporation of the solvent uniform films of oxides of silicon, germanium, titanium, tin and antimony were obtained. To improve adhesion of the films to their bases they were heated to 120°C. These films were deposited on plates of fluorite, sodium chloride,

Card 1/4

51-4-1-11/26

Preparation of Translucent Films Which are Transparent in the Infrared Spectral Region.

thallium bromoiodide (KRS-5) and de-oxidized sulphide glass. Transmission and reflection were measured in the 3-15 μ spectral region. Thickness and refractive index of films were measured on a polarizing goniometer. The films were found to adhere strongly to their bases and were stable under rubbing. Measurement of the infrared transmission showed that these films, with the exception of silicon dioxide, are transparent from 3 to 12 μ. Silicon dioxide films of 0.3 μ optical thickness possess an absorption band at 7.5-9 μ. Results of these measurements are given in a table on p.84. This table shows that films up to 2 μ thick could be obtained with refractive indices from 1.6 to 2.0.

Card 2/4 Reflection of light was measured for arsenic-sulphur

Preparation of Translucent Films Which are Transparent in the Infrared Spectral Region.

glass covered by films of titanium dioxide and antimony trioxide. Fig.1 shows that reflection of the infrared light (3-12 μ wavelengths) from the above glass covered with antimony trioxide is smaller than reflection from glass without this film. Minima of the reflection coefficient of coated glass, which may be as low as 3.8% (instead of 10-19% for plain glass), were found to occur in the 3.5-7.0 μ spectral region for antimony trioxide films of 0.88-1.75 μ thickness. The spectral curves of reflection obtained experimentally and by calculation for a glass with n = 2.6 covered by an antimony trioxide film 1.375 μ thick, are compared in Fig.2 and are found to be in good agreement. Measure-

51-4-1-11/26

Preparation of Translucent Films which are Transparent in the Infrared Spectral Region.

ments of transmission of sulphide glass covered by a film of antimony trioxide 1.375 μ thick (Fig.3) showed that in the spectral region 3-5.5 μ transparency may be increased by 20 - 25%. Deposition of titanium dioxide layers of 0.3 to 1.05 μ thickness also decreases considerably reflection of the infrared light at wavelengths when the film thickness equals 1/4 λ. The reflection coefficient (Fig.4) may be then decreased from 18-19% to 3.8%. There are 4 figures, 1 table and 7 references, of which 5 are Russian and 2 American.

ASSOCIATION: State **Institute of Optics** imeni S. I. Vavilov.
(Gos. opticheskiy institut im. S.I. Vavilova.)

SUBMITTED: March 18, 1957.

AVAILABLE: Library of Congress.

Card 4/4

1. **Films-Translucent-Infrared-Transparency spectra**

SHIROKSHINA, Z.V.; SYUKOVSKAYA, N.V.

Properties of tungsten hexachloride alcohol solutions and films produced from them. Zhur.prikl.khim. 33 no.5:1001-1008 My '60. (MIRA 13:7)

(Tungsten chloride)

L 14549-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACC NR: AP6004421 SOURCE CODE: UR/0051/66/020/001/0173/0175

AUTHORS: Shirokshina, Z. V.; Konstantinova, E. N.

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44
C

ORG: none

21,44,55

TITLE: Increase in the luminescence intensity of electroluminescent low-voltage gallium arsenide diodes

SOURCE: Optika i spektroskopiya, v. 20, no. 1, 1966, 173-175

TOPIC TAGS: gallium arsenide, radiation intensity, electroluminescence optic coating, light reflection

ABSTRACT: An increase in the luminescence intensity was obtained in this investigation by depositing on the p-n junction side of the gallium arsenide crystal a homogeneous interference coating, consisting either of titanium dioxide or of a mixture of titanium dioxide with silicon, so as to reduce the reflection on the crystal-air interface. From the known values of the refractive indices of the coatings it is possible to determine the required thickness of the

Card 1/2 UDC: 535.376

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ACC NR: AP6004421

coating (225 nm). The coating solvents were ethers of orthotitanic and orthosilicic acids. The coating reduced the reflection coefficient from 30 to 0.1 percent. The intensity of luminescence of the gallium arsenide was increased by 40—50 percent by means of a film consisting of a mixture of titanium oxide and silicon oxide. Titanium dioxide alone increased the luminescence by only 25—30 percent. It is reported that such films can withstand a temperature of 1000C. Orig. art. has: 3 figures. [02]

SUB CODE: 20/ SUBM DATE: 19Apr65/ ORIG REF: 003/ OTH REF: 003
ATD PRESS: 4197

60

Card 2/2

S/0080/64/037/005/1142/1145

ACCESSION NR: AP4038566

AUTHOR: Shirokshina, Z. V.

TITLE: Properties of film forming fluororganic polymer solutions

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 4, 1964, 1142-1145

TOPIC TAGS: fluorinated polymer, fluorinated polymer solution, protective fluorinated film, fluoroplastic, film forming, interferential film

ABSTRACT: While the superb resistance of fluororganic compounds to the most aggressive environment (nitric and sulfuric acids, aqua regia) is well known, there are no data in the literature concerning the properties of these high molecular compounds in solutions forming thin interferential films less than 1 micron thick. Therefore, the author undertook tests with fluorinated plastic 321, types N and V dissolved in: a) 25% acetone/25% toluene/50% amyl acetate; and b) acetone and amylacetate in a proportion of 1:1. Various concentrations of plastic in the solution (2 to 10%) produced linearly proportional densities from 0.84 to 0.90 g/cm^3 or viscosities from 1.5 to 200 poises. Elimination of toluene from the solvent caused considerable decrease in density and viscosity. The influence of

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ACCESSION NR: AP4038566

temperature was studied, as well as refraction values at different concentrations. By selecting optimum concentrations, homogeneous and uniform coating layers were obtained. In the course of the tests it was found that the viscosity of the N type of plastic is considerable lower than that of type V which is probably due to the low level of aggregation by shorter and more mobile molecules. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 11Oct62 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: GC NO REF SOV: 009 OTHER: 008

Card 2/2

SHIRONAS, V.I

Category : USSR/Atomic and Molecular Physics - Physics of the Atom D-1

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3360

Author : Vizbarayte, Ya, I., Shironas, V.I., Kavetskis, V.I., Yutsis, A.P.
Title : The Fok Self-Consistent Field in the Multi-Condiguration Approximation for the Helium Atom

Orig Pub : Optika i spektroskopiya, 1956, 1, No 3, 277-281

Abstract : Solutions to the Fok equations are given in the two-configuration approximation for the configurations $2p^2$, $2s^2$, $3d^2$, and $3p^2$, considered as accountable configurations with respect to the ground configuration of the helium atom. With the aid of these solutions, the authors determined the values of the correction to the energy of the ground configuration at various multi-configuration approximations. Also given are the values of the correction to the energy, obtained with the aid of the self-consistent Fok field in the six-configuration approximation $1s^2$ -- $2p^2$ -- $2s^2$ -- $3d^2$ -- $3p^2$ -- 2p3p, and were compared with the experimental values of the energy.

Card : 1/1

1. SHIRONIN, K.

2. USSR (600)

4. Turukhansk--Vegetabel Gardening

7. Vegetables by the Arctic Circle, Vokrug sveta, No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

FABRIKANTOV, G.A.; SHIRONIN, L.I.

Use of gamma globulin in preventing epidemic hepatitis. Med. zhur. Uzb. no. 2:22-23 F '61. (MIRA 14:2)
(HEPATITIS, INFECTIOUS) (GAMMA GLOBULIN)

SHIRONIN, L.I.

Use of the microagglutination reaction with antigen of Rickettsia burneti for the serodiagnosis of Q fever in children. Med. zhur. Uzb. no.3:21-23 Mr '61. (MIRA 14:5)
(AGGLUTINATION) (ANTIGENS AND ANTIGENS)
(Q FEVER)

SHIFRIN, I.A.; SHUTYAYEV, N.A.; LAVRINENKO, S.P.; SHIRONIN, L.I.

Outbreak of Pomona type anicteric leptospirosis preceded by
Q-fever. Med. zhur. Uzb. no.5:76-78 My '60. (MIRA 15:3)
(UZBEKISTAN—LEPTOSPIROSIS)
(Q FEVER)

SHIRONOV, V.V.; ORLOVA, N.S.; KODACHENKO, M.V.; YUROV, G.A.

Observations of the lunar eclipse of November 29, 1955, at the Astronomical Observatory of Leningrad University. Astron. tsirk. no.171:7-10 Jl '56. (MLRA 9:12)

(Eclipses, Lunar--1955)

VINOKUROV, D.Ya.; SHIROTSKIY, I.P.; FROLOV, V.N.; KOGAN, A.S., spets. red.; KAMENSKAYA, Ye.A., red.; POLUYEKHINA, N.I., tekhn.red.

[Brief manual for the ship repair worker]Kratkoe posobie dlia rabochego-sudoremontnika. Moskva, Rybnoe khoz., 1962. 121 p. (MIRA 16:4)

(Ships--Maintenance and repair)

L 57486-65 EWT(1) GW

ACCESSION NR: AP5015756

UR/0006/65/000/006/0009/0014
528.517

AUTHOR: Fel'dman, G.A.; Shirov, F.V.

TITLE: The "Kristall" phototachymeter

SOURCE: Geodeziya i kartografiya, no. 6, 1965, 9-14

TOPIC TAGS: phototachymeter design, range finder construction, Kerr condenser, prism polarizer, surveying instrument

ABSTRACT: The new "Kristall" phototachymeter developed by TsNIIGAiK consists [illegible] complex optical system for the transmission and reception of light [illegible] Fel'dman, Geodeziya i kartografiya, 1965, no. 5), combined with [illegible] the modulation [illegible] demodulation of the luminous flux. The [illegible] prism [illegible] for modulation and [illegible] each component through a [illegible] Author's certificate No. 148210. A special feature of the device [illegible] its minimum setting. The entire instrument (including the battery) [illegible] about 40 kg. The article describes in detail the block diagram of the

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ACCESSION NR: AP5015756

phototachymeter, its construction, its optical properties and the results of test measurements. Over the 200 m to 2 km distance the mean quadratic error was ±18 [illegible] seemed to be independent of the distance measured. Orig. art. has: 2 [illegible] 1 table.

ASSOCIATION: none

SUBMITTED: 00	ENCL: 00	SUB CODE: ES
NO REF SOV: 004	OTHER: 000	

Card 2/2

[illegible], I. I.

"Singular points of a second group." Cand Phys-Math Sci, Kazan' State U, Kazan', 1954. (Referat, Feb 55)

So: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

SHIROV, I.I.

Conditions of the center. Trudy UzGU no.59:63-84 '55. (MIRA 10:12)
(Differential equations) (Functions, Analytic)

SHIROV, I.I.

Modified method of M. Al'mukhamedov. Trudy UzGU no.78: 53-57 '58. (MIRA 13:6)
(Differential equations)

SHIROV, I.I.

One method for proving the theorem of the sum of products.
Trudy UzGU no.78:59-69 '58. (MIRA 13:6)
(Differential equations)

26167
S/044/61/000/006/005/019
C111/C222

16.3400

AUTHOR: Shirov, I.I.

TITLE: On periodic and non-periodic non-linear vibrations

PERIODICAL: Referativnyy zhurnal. Matematika, no.6, 1961, 30, abstract 6B 144. ("Vses.Mezhvuz. konferentsiya po teorii i metodam rascheta nelineyn. elektr. tsepey no.7", Tashkent, 1960, 1-12)

TEXT: The author uses the method of the generalized symmetry proposed by the author (Dokl.AN SSSR, 1938, 19, no.5-6; 1944, 42, no.5,6,7, and Tr.Uzb. un-ta, 1951, no.47) and develops a method for finding successive conditions for a whirl for the differential equation

$$\frac{dY}{dx} = \frac{-x+Y(x,y)}{y[1+X(x,y)]},$$

where Y(x,y) and X(x,y) are analytic functions, where

$$X(0,0) = Y(0,0) = \frac{\partial Y}{\partial x}(0,0) = \frac{\partial Y}{\partial y}(0,0) = 0.$$

The conditions for a whirl due to I.I.Shirov distinguish from the

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On periodic and non-periodic... S/044/61/000/006/005/019
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conditions for a whirl due to other authors by the fact that they are given immediately explicit. Every n-th condition for a whirl reads according to Shirov: $D_n = 0$, where D_n is a determinant of $n(2n+4)$-th order the elements of which are the coefficients of the analytic functions $X(x,y)$, $Y(x,y)$.

[Abstracter's note: Complete translation.]

Card 2/2

SHIROV, I. I.

"On the problem of the centre and the focus in the theory of nonlinear oscillations."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, USSR, 9-19 Sep 61

Uzbeikh State University, Samarkand

SHIROV, I.I.

Determining the aperiodic stability region when the characteristic equation contains nonlinear parameters. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk 9 no.4:23-28 '65. (MIRA 18:9)

1. Institut matematiki imeni Romanovskogo AN UzSSR.

SHIROV, N., doktor khimicheskikh nauk

Boron luminophor. IUn.tekh. 5 no.8:79 Ag '61. (MIRA 14:12)
(Luminescent substances)

EMANUILOV, Ign.; VELCHEVA, P.; NACHEV, L.; TOSHKOV, As.; SHIROVA, L.

Studies on the chemical composition and antibacterial and antitoxic properties of royal jelly. Izv. microbiol. inst. 15:89-95 '63

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EMANUILOV, Ign.; NACHEV,L.; VELCHEVA,P.; DACV,T.; TOSHKOV,A.; VULCHANOV,V.;
SHIROVA,L.

Effect of fermentation products containing vitamin B 12 on fowls fed vegetable food. II. Izv. mikrobiol. inst. (Sofiia) 16:91-104 '64

KADATSKAYA, K.P.; SHIROVA, L.F.

Ixodid ticks and fleas in a tularemia focus of the Nakhichevan A.S.S.R. Dokl. AN Azerb. SSR 19 no.4:79-83 '63. (MIRA 16:12)

1. Institut zoologii AN Azerbaydzhanskoy SSR. Predstavleno akademikom AN Azerbaydzhanskoy SSR A.N.Derzhavinym.

SHIROVA, T., inzh.-geol.; KRUSTEVA, N., geol.

Indirect determination of the compression modulus of some cohesive soils. Stroitelstvo 11 no.5:13-15 S-O '64.

SIDEL'KOVSKAYA, F.P.; KOLODKIN, F.L.; SHIROYAN, F.R.

Synthesis of N-β-hydroxyethyl lactams and their reaction with thionyl chloride. Izv. AN SSSR Ser. khim. no.2:374-376 '65.
(MIRA 18:2)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

SHEKHTMAN, B.A., dotsent; GUSEYNOV, M.M., assistent; SHIROYAN, N.M., vrach

Labor hygiene and sanitation in the production of catalyzers for the cracking of petroleum. Azerb.med.zhur. no.1:82-85 Ja '60. (MIRA 13:5)

1. Iz kafedry gigiyeny truda Azgosmedinstituta imeni N. Narimanova.
2. Bakinskaua sanitarno-epidemiologicheskaya stantsiya (for Shiroyan).

(SULFURIC ACID --PHYSIOLOGICAL EFFECT)